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PATENT AND TRADEMARK OFFICE

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Applicant(s): Flickinger, et al.

Application No: 10/706,748

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Title: PLUGGABLE MODULE AND  
RECEPTACLE

Art Group: 2839

Confirmation No. 7557

Examiner: Dinh, Phuong K.

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addresses to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on October 27, 2006.

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Stephen Driscoll

**APPELLANT'S BRIEF**

By virtue of filing a Notice of Appeal on July 24, 2006 (which was received by the Patent and Trademark Office on July 27, 2006), appellants have appealed the final rejection of the Examiner mailed on February 2, 2006 (hereinafter "Final Action").

Applicants also petition for a one-extension of time, thereby extending the time for response through October 27, 2006. The Commissioner is hereby authorized to charge any fees that may be required, any deficiencies that may arise, and to credit any overpayment that may be owed to Applicants in connection with this brief, petition, and application in general to Deposit Account No. 19-5425.

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**1. REAL PARTY IN INTEREST**

The present application is assigned to Tyco Electronics Corporation; thus, Tyco Electronics Corporation is the real party in interest.

**2. RELATED APPEALS AND INTERFERENCES**

The appellant, assignee and the legal representatives of both are unaware of any other appeal or interference that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

**3. STATUS OF CLAIMS**

- a. Claims canceled: 38.
- b. Claims withdrawn from consideration but not canceled: none.
- c. Claims pending: 1-37 and 39-43.
- d. Claims allowed: 1-25.
- e. Claims rejected: 26-31, 34-37, 39-40, 42, and 43.
- f. Claims objected to: 32 and 33.
- g. Claims appealed: 26 and 34.

**4. STATUS OF AMENDMENTS**

An amendment is filed herewith canceling claim 38, the subject matter of which has already been incorporated into claim 34.

**5. SUMMARY OF CLAIMED SUBJECT MATTER**

The claimed invention provides for a compact, self-contained pluggable transceiver module which facilitates miniaturization and high operating frequencies by containing EMI emissions. (Appln. p. 3, ll.5-9, p. 4, ll. 3-5, p. 6, ll. 20-23, and p. 11, ll. 31-34.) In particular, Claims 26 and 34 are directed to a transceiver module (40) for electrically connecting to a receptacle connector (90) mounted to a host circuit board (10). The module comprises a housing having a front/back and top/bottom orientation. (Appln. p. 5, ll. 24-30, Figs. 8b and 9.) The housing has a top wall, a bottom wall, a back wall and side walls. Each of the walls is planar. (Figs. 8b and 9.) The module also comprises a planar module circuit board (96)

having an edge portion (94) on which is disposed pads suitable for forming an electrical connection with contacts of the receptacle connector (90) (Appln. p. 10, ll. 15-27.) The pads are enclosed by the planes of the top wall, the bottom wall, and the side walls. (Appln. Fig 8b). The front of the module also comprises a connector interface (49) adapted for receiving a connector of an electrical or optical conductor. (Appln. p. 7, ll. 4-10.) Claim 34 also recites features with respect to grounding tabs (99) and the mating action of the module circuit board (96) with the receptacle connector (90). (Appln. p. 4, ll. 5-14, p. 9, ll 20-25, p. 10, ll. 15-27.)

## **6. GROUNDS OF REJECTION FOR REVIEW ON APPEAL**

Applicant requests the Board to review the rejection of the claims 26 and 34 under 35 USC 103(a) based on Poplawski (US Patent No. 5,879,173) in view of Smith (US Patent No. 4,352,492) and further in view of Burgmann (US Patent No. 4,801,924).

## **7. ARGUMENT**

### **Claims 26 and 34:**

In the Final Rejection, the Examiner purported to provide new grounds for rejection while maintaining her rejection of Claims 26, 38-40, and 42-43. Specifically, the Examiner found these claims unpatentable over *Poplawski* in view of *Smith* and further in view of *Burgmann*. She stated that “*Poplawski* discloses the claimed invention except for a back wall that provides enclosure for the PCD pads.” She states, however, that “it would have been obvious ... to modify *Poplawski* to provide the back walls taught by *Smith* and *Burgmann* so as to provide for a simpler housing design.” Furthermore, in response to Applicants’ previous arguments that *Smith* was non-analogous art, she stated that these arguments “have been considered but are moot in view of the new grounds of rejection.”

### **A. The rejection is based on a combination of non-analogous prior art.**

Although the examiner stated in the Final Action that Applicants’ previous arguments that *Smith* is nonanalogous art are moot in view of the new grounds of rejection, the

Examiner nevertheless relies on *Smith* as a secondary reference. Furthermore, she also relies on *Burgmann*, which, like *Smith*, is not analogous prior art.

The Applicants respectfully resubmit the previous argument that *Smith* and *Burgmann* are not valid references to support a rejection under 103(a) because they are not analogous prior art. "To rely on a reference as a basis for rejection of an applicants' invention, the reference must either be in the field of the applicants' endeavor or, if not, then must be reasonably pertinent to the particular problem with which the inventor was concerned." M.P.E.P. §2141.01(a) citing *In re Oetiker*, 977 Fed 2nd 1443 (Fed. Cir. 1992). In this case, *Smith* and *Burgmann* are neither in Applicants' field, nor are they reasonably pertinent to the problem with which the inventor was concerned.

The field of the applicants' endeavor is set forth in the claims themselves, which are directed to a telecommunications transceiver module. The applicants' field of endeavor is also set forth in the Field of Invention:

The present invention relates generally to electronic connector systems and, more specifically, to low-profile connector systems for pluggable electronic modules, such as transceiver modules for high speed fiber optical and copper communications.

Therefore, the field of the applicants' endeavor for the claims in question is clearly a telecommunication transceiver.

On the other hand, *Smith* is directed to a video game apparatus for connection to a standard television set. Specially, as set forth in Smith's Field of Invention:

[*Smith*] relates generally to video game apparatus and, more particularly, to a self-contained video signal generating device for use in association with a standard black-and-white or color television set and which includes preprogrammed data relating to several selectable games as well as means for receiving a preprogrammed cartridge containing other data that may be selected to provide additional game play.

Therefore, since *Smith* relates to video games and not to a transceiver module for telecommunications, it is outside the field of the applicants' endeavor.

*Burgmann* is related to a wireless security system as set forth in the Field of Invention. (Col 1, lines 7-8). Indeed, the transmitter module disclosed in *Burgmann* is wireless and does not even interface with optical or electrical plug connectors. Therefore,

since *Burgmann* relates to a wireless security system and not to a transceiver module for telecommunications, it also lies outside the field of the applicants' endeavor.

Since *Smith* and *Burgmann* lay outside the field of Applicants' endeavor, the issue becomes whether the references are reasonably pertinent to the particular problem with which the inventor was concerned. Here, the claimed invention is aimed at a telecommunication transceiver module which facilitates miniaturization and EMI protection. More specifically, the claimed invention is directed to a transceiver module that "facilitates miniaturization and high operating frequencies [characteristic of telecommunications] by effectively shielding EMI emissions to eliminate leaks . . . ." (App. Summary of Invention). To this end, the transceiver module of the claimed invention comprises walls to shield the circuit board it contains and prevent EMI emissions. The transceiver module also comprises, in a preferred embodiment, grounding tabs to channel EMI to ground.

It is inconceivable to Applicants why one skilled in the art would look to *Smith* or *Burgmann* to solve a problem of configuring a transceiver module which is suitable for miniaturization and EMI reduction in the telecommunications field. That is, as mentioned above, *Smith* is concerned about expanding the type of video games available for play by providing a preprogrammed cartridge having additional memory. See *Smith* col. 3, ll 3-8, and ll. 59-62. *Burgmann* is concerned about programming a transmitter which does not transmit while it is in transit between the programming unit and the particular sensor in which it is to be installed. Purportedly, by preventing its transmission during this time, it does not diminish its low power voltage source and lose vital memory. Therefore, *Smith* is directed to a module containing memory and *Burgmann* is directed to a transmitter programmed to restrict transmissions. Neither reference mentions a transceiver module for telecommunications--much less the need to miniaturize and control EMI. (To the contrary, *Burgmann* is directed to a transmitter and, thus, is aimed at generating electromagnetic radiation rather than reducing it.) There is not a scintilla of evidence suggesting that one skilled in the art would turn to either reference to solve the problem of designing a telecommunication transceiver for miniaturization and EMI reduction.

Therefore, since *Smith* and *Burgmann* are not in the field of the claimed invention, and since one skilled in the art would not find the references reasonably pertinent to solve

the problem with which the inventor was concerned, *Smith* and *Burgmann* are not analogous art. Accordingly, the references should be removed and the claims allowed.

**B. There is no motivation to combine the transceiver of *Poplawski* with the module housing as taught by *Smith* and *Burgmann*.**

The Examiner has stated that one would be motivated to modify the transceiver of *Poplawski* to have the back wall as taught by *Smith* and *Burgmann* so as to “provide for a simpler housing design.” Such a rejection, however, is based on hindsight rather than motivation found within the prior art. Indeed, there is no motivation to modify the transceiver of *Poplawski* to have the housing as taught by *Burgmann* or *Smith* since such a modification would render the module of *Poplawski* unsuitable for its intended purpose. It is well established in US patent law that there can be no motivation to modify a reference if that modification would render the reference unsuitable for its intended purpose.

*Poplawski* is directed to an optoelectric transceiver having a potted circuit board. The housing of the transceiver functions as a potting box for containing the potting material as it is poured over the circuit board. Therefore, the housing of *Poplawski* is intended, not only to house the circuit board, but also to contain the potting material poured over the circuit board. (See *Poplawski* abstract).

Modifying the module of *Poplawski* to have a rear wall as disclosed in *Burgmann* or *Smith* for containing the module connector would destroy the potting box. Specifically, if the housing were modified so as to contain the module connector, the rear wall must contain an opening to provide access to the module connector. This opening, however, would compromise the potting box as the potting material would be free to flow out. Additionally, if the circuit board and module connector are contained within the same housing, then the potting material would cover, not only the circuit board, but also the module connector as well. This would ruin the module connector. Thus, modifying the housing of *Poplawski* so that the back wall contains the module connector would destroy the intended purpose of *Poplawski*. Accordingly, there can be no motivation to do so. Without motivation, the rejection should be withdrawn and the claims allowed.

**C. Conclusion**

In view of the above, it is submitted that the claims of the present application are in condition for allowance, and a decision to that effect is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'SJD', is written over a horizontal line.

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## CLAIMS APPENDIX

1. (original) A receptacle for use with a receptacle connector mounted to a host circuit board within a chassis of a host system, said receptacle comprising:
  - a housing having a front, a back wall, a top wall, a bottom wall, and side walls and defining a cavity for receiving a module, said bottom wall having a bottom opening with said receptacle connector being disposed therein when said receptacle is mounted to said host circuit board, said back, top, and side walls defining planes which completely contain said receptacle when said receptacle is mounted to said host circuit board; and
  - a plurality of elongated members extending down from said housing past said bottom wall and adapted for electrical connection to said host circuit board such that said walls are electrically connected to said host circuit board.
2. (original) The receptacle of claim 1, wherein said bottom wall covers more than 50% of the bottom area of said receptacle.
3. (original) The receptacle of claim 1, wherein at least one elongated containment member extends from said housing between two of said elongated members, said containment member being electrically conductive and electrically connected to said walls.
4. (original) The receptacle of claim 3, wherein said containment members are symmetrically located on each side of said receptacle and wherein said elongated members are asymmetrically located on each side of said receptacle.
5. (original) The receptacle of claim 3, wherein said containment members are disposed adjacent said bottom opening.
6. (original) The receptacle of claim 1, wherein said housing further comprises resilient grounding tabs disposed at said front of said housing to effect an electrical connection with said chassis of said host system when said receptacle is mounted to said host circuit board.



7. (original) The receptacle of claim 6, wherein said grounding tabs are formed in said top, bottom, and side walls adjacent said front opening.

8. (original) The receptacle of claim 1, wherein said housing further comprises a latch adjacent said front opening, said latch being adapted for both engaging a module to hold said module in said receptacle until said latch is released, and effecting an electrical connection between said module and said housing

9. (original) The receptacle of claim 1, wherein at least said top wall defines holes.

10. (original) The receptacle of claim 9, wherein said holes on said top wall are aligned in two or more rows running front to back thereby defining grounding paths of solid conductive material between the rows.

11. (original) A receptacle for use with a receptacle connector mounted to a host circuit board within a chassis of a host system, said receptacle comprising:

a housing having a front, a back wall, a top wall, a bottom wall, and side walls and defining a cavity for receiving a module, said bottom wall having a bottom opening with said receptacle connector disposed therein when said receptacle is mounted to said host circuit board, at least said top wall defining holes, said holes being aligned in two or more rows running front to back thereby defining grounding paths of solid conductive material between said rows, said top, back, and side walls defining planes which contain said receptacle connector in its entirety when said receptacle is mounted to said host circuit board, said front having a front opening to receive said module, the walls comprising a conductive material;

a plurality of elongated members extending down from said housing past said bottom wall and adapted for electrical connection to a host circuit board such that said walls are electrically connected to said host circuit board; and

resilient grounding tabs disposed at said front of said housing to urge against said chassis of said host system when said receptacle is mounted to said host circuit

board and thereby effect an electrical connection between said housing and said chassis.

12. (original) The receptacle of claim 11, wherein said housing comprises a discrete upper portion and a discrete lower portion connected to said upper portion.

13. (original) The receptacle of claim 12, wherein said grounding tabs are part of said upper portion.

14. (original) The receptacle of claim 13, wherein said grounding tabs are disposed on at least said side walls and said top wall.

15. (original) The receptacle of claim 11, wherein said bottom wall covers more than 50% of the bottom area of said receptacle.

16. (original) A pluggable module system comprising:  
a receptacle housing having a front, a back wall, a top wall, a bottom wall, and side walls and defining a cavity for receiving a module, said bottom wall having a bottom opening;  
a receptacle connector electrically connected to said host circuit board and disposed in said bottom opening such that it protrudes into said cavity and is contained in its entirety by the planes defined by said back, top and side walls, said receptacle connector being adapted for electrically interfacing a module to said host circuit board; and  
a module being adapted for insertion into said receptacle and comprising a planar module circuit board and a module housing, said module housing having a front and back orientation and a top and bottom orientation, said housing having a top module wall, a bottom module wall, a back module wall and side module walls, each of said top module wall, said bottom module wall, and said side module walls being planar, said module circuit board having pads suitable for forming an electrical connection with contacts of said receptacle connector, said pads being enclosed by the planes defined by said top module wall, said

bottom module wall, said side module walls, and said back module wall, said front being adapted to receive a connector.

17. (original) The system of claim 16, wherein said module further comprises grounding contacts configured for electrical connection to said housing of said receptacle upon insertion of said module in said receptacle.

18. (original) The system of claim 17, wherein at least said top module wall defines holes which are aligned in two or more rows running front to back thereby defining grounding paths of solid conductive material between the rows, and wherein said grounding paths and grounding contacts cooperate such that, when said module is inserted into said housing, said grounding contacts slide along said paths.

19. (original) The system of claim 16, wherein said module circuit board comprises an edge portion which is accessible in a direction along the same plane as said module circuit board, said pads being disposed on said edge portion, said pads being suitable for forming an electrical connection with said contacts of said receptacle connector, and wherein said receptacle connector comprises a slot for receiving said edge portion and at least two rows of contacts, one row of contacts extending upward into the slot and another row of contacts extending downward into the slot, said contacts being adapted to make an electrical connection with pads on said module circuit board when said module is inserted into the housing.

20. (original) The system of claim 16, further comprising an ejection mechanism comprising a resilient member disposed adjacent the back of said housing, and a retention mechanism comprising a resilient latch disposed on said housing, an actuator slidably connected to said module, and a latching member extending from said module for latching with said resilient latch, said ejection mechanism and said retention mechanism cooperating such that, when said module is inserted into said receptacle, said resilient member becomes loaded and said resilient latch engages said latching member, and when said actuator is pushed backward, said actuator urges said resilient latch from said latching member, thereby allowing said resilient member to unload and urge the module from the receptacle.

21. (original) The system of claim 16, wherein said latching member is configured to shear if said module is forcibly pulled from the housing without releasing said latching mechanism.
22. (original) The system of claim 16, wherein said resilient latch comprises an inclined leading edge for riding over the latching member of the module and interfering with a ramped portion of an actuator of the module.
23. (original) The system of claim 16, wherein said module circuit board being enclosed by the planes of said top module wall, said bottom module wall, said side module walls, and said back module wall and wherein said back module wall only partially covers the back of said module circuit board such that said edge portion is accessible from the back of the module along the plane of said module circuit board.
24. (original) The system of claim 16, wherein said receptacle connector is disposed within the planes defined by the top, back and side module walls when electrically connected to said module circuit board.
25. (original) A pluggable module system comprising:
  - a receptacle housing having a front, a back wall, a top wall, a bottom wall, and side walls and defining a cavity for receiving a module, said bottom wall having a bottom opening;
  - a receptacle connector electrically connected to said host circuit board and disposed in said bottom opening such that it protrudes into said cavity and is contained in its entirety by the planes defined by said back, top and side walls, said receptacle connector being adapted for electrically interfacing a module to said host circuit board, said receptacle connector comprising a slot for receiving and at least two rows of contacts, one row of contacts extending upward into the slot and another row of contacts extending downward into the slot; and
  - a module being adapted for insertion into said receptacle and comprising a planar module circuit board and a module housing, said module housing having a front and back orientation and a top and bottom orientation, said housing

having a top module wall, a bottom module wall, a back module wall and side module walls, each of said top module wall, said bottom module wall, and said side module walls being planar, said module circuit board having pads suitable for forming an electrical connection with contacts of the receptacle connector, said pads being enclosed by the planes defined by said top module wall, said bottom module wall, said side module walls, and said back module wall, said front being adapted to receive a connector, said module circuit board comprising an edge portion which is accessible in a direction along the same plane as said module circuit board and is adapted to be received in said slot of said receptacle connector, said pads being disposed on said edge portion, said pads being suitable for forming an electrical connection with said contacts of said receptacle connector when said edge portion is disposed in said slot, the planes defined by said top, back and side module walls containing said receptacle connector when said edge portion is disposed in said slot.

26. (previously amended) A telecommunication transceiver module for electrically connecting to a mating connector mounted to a host circuit board, the module comprising:
- a housing having a front and back orientation and a top and bottom orientation, said housing having a top wall, a bottom wall, a back wall and side walls, each of said top wall, said bottom wall, and said side walls being planar;
  - a planar module circuit board for a transceiver, said circuit board having pads suitable for forming an electrical connection with contacts of the mating connector, said pads being enclosed by the planes defined by said top wall, said bottom wall, said side walls, and said back wall; and
  - a connector interface at the front of said housing, said connector interface being adapted for receiving a connector of an electrical or optical telecommunication conductor.

27. (original) The module of claim 26, wherein said pads are disposed on an edge of said module circuit board.

28. (original) The module of claim 26, wherein said pads are adapted to mate with said mating connector through movement of the module to said mating connector along a plane parallel to the plane of said circuit board.

29. (original) The module of claim 26, wherein said back wall only partially covers the back of said module circuit board such that said edge portion is accessible from the back of the module along the plane of said module circuit board.

30. (previously presented) The module of claim 26, further comprising:  
grounding contacts configured for electrical connection to a receptacle upon insertion of said module in said receptacle.

31. (original) The module of claim 26, wherein said grounding contacts are disposed at least on said top wall and said side walls.

32. (original) The module of claim 26, further comprising an actuator slidably connected to said module and a latching member extending from said module for latching with a resilient latch of a receptacle, when said module is inserted into said receptacle, said resilient latch engages said latching member, and when said actuator is pushed backward, said actuator urges said resilient latch from said latching member, thereby allowing said resilient member to unload and urge the module from the receptacle.

33. (previously presented) The module of claim 32, wherein said latching member is configured to shear if said module is forcibly pulled from the receptacle without released from said resilient latch.

34. (previously amended) A telecommunication transceiver module for electrically connecting to a mating connector mounted to a host circuit board the module comprising:  
a housing having a front and back orientation and a top and bottom orientation, said housing having a top wall, a bottom wall, a back wall and side walls, each of said top wall, said bottom wall, and said side walls being planar;

a planar module circuit board for a transceiver, said circuit board having pads disposed on an edge thereof suitable for forming an electrical connection with contacts of the mating connector, said pads being enclosed by the planes defined by said top wall, said bottom wall, said side walls, and said back wall, said pads being adapted to mate with said mating connector through movement of said module relative to said mating connector parallel to the plane of said circuit board, said back wall only partially covering the back of said module circuit board such that said pads are accessible from the back of the module along the plane of said module circuit board;

a connector interface at the front of said housing, said connector interface being adapted for receiving a connector of an electrical or optical telecommunication conductor; and

grounding contacts for forming an electrical connection with a receptacle when the module is inserted in the receptacle.

35. (original) The module of claim 34, wherein said grounding contacts are resilient.

36. (original) The module of claim 35, wherein grounding contacts are integral to said housing.

37. (original) The module of claim 36, wherein said grounding contacts are disposed at least on said top wall and said side walls.

38. (cancelled)

39. (previously presented) The module of claim 34, wherein said module is a small form factor module.

40. (previously presented) The module of claim 34, wherein connector interface is suitable for receiving at least one of an MT-RJ or a HSSDC2 copper connector.

41. (cancelled)

42. (previously presented) The module of claim 26, wherein said module is a small form factor module.

43. (previously presented) The module of claim 26, wherein connector interface is suitable for receiving at least one of an MT-RJ or a HSSDC2 copper connector.



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## Evidence Appendix

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#### Related Proceedings Appendix

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